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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,987	12/10/2001	Guanghua Huang	10139.22US01	3373
23552	7590	10/24/2003	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			ROJAS, BERNARD	
			ART UNIT	PAPER NUMBER

2832

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/014,987

Applicant(s)

HUANG, GUANGHUA

Examiner

Bernard Rojas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/10/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

New corrected drawings are required in this application because not the drawings annotations are hard to read and the drawings are hazy making it difficult to point out the details applicant claims as his invention. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### ***Claim Objections***

Claims 1, 3-9 objected to because of the following informalities: these claims refer to a microstrip instead of the first and second microstrips previously claimed. Appropriate correction is required. For interpretation, the claims will be with the term microstrips.

### ***Claim Rejections - 35 USC § 112***

Claims 1-19 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Regarding claims 1-19, the phrase "of about" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 15-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Ruan et al. [US 6,496,612].

Claim 1, a MEM switch [100] with a contact bridge [308, 402];

a first [108] and second [408] microstrips electrically isolated from each other;

a cantilever arm [112] supporting the contact bridge having an end portion, an open state and a closed state, the contact bridge spaced away from the microstrip when the cantilever is in the open state [figure 4a] and the contact bridge providing electrical communication between the microstrips in the closed state [col. 8 lines 26-31];

an electrically conductive coil [114] opposing the first end wherein the coil moves the cantilever arm from the open state to the closed state when a voltage is applied across the coil [col. 5 line 42 – col. 6 line 17]; and

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a housing [504, 510, 512] enclosing the cantilever arm, the first and second microstrips and the electrically conductive coil.

Claim 2, a MEM switch [100] with a cantilever arm [112] having a first and second end portions;

a contact bridge [308, 402] connected to the cantilever arm and positioned between the first and second end portions;

a first [108] and second [408] microstrips electrically isolated from each other; and

an electrically conductive coil [114] opposing the first end wherein the coil moves the cantilever arm from the open state to the closed state when a voltage is applied across the coil [col. 5 line 42 – col. 6 line 17].

Claim 13, the a contact bridge [308, 402] is formed from an electrically conductive material attached to the cantilever arm.

Claim 15, a MEM switch [100] with a cantilever arm [112];

a first [108] and second [408] microstrips electrically isolated from each other;

a contact bridge [308, 402];

means for moving the cantilever arm [114] between a first position wherein the first and second microstrips and a contact bridge [308, 402] form a closed circuit [col. 5 line 42 – col. 6 line 17]; and a second position wherein the microstrips form an open circuit [figure4a].

Claim 16, the means for moving the cantilever arm includes an electrical coil [114], the coil opposing the cantilever.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-12, 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruan et al. [US 6,496,612].

Claims 3 and 4, Ruan et al. discloses the claimed invention except for the distance between the contact bridge and the microstrips when the MEM switch is in an open state. It would have been an obvious matter of design choice to create a 12um distance, since applicant has not disclosed that this particular distance solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the distance used by Ruan et. al.

Claim 5, the cantilever arm, contact bridge, microstrips and electrically conductive coil are enclosed in a housing [504, 510, 512] that is not hermitically sealed.

Claim 6, the cantilever arm, microstrips and electrically conductive coil are enclosed in a housing [figure 5, 504, 510, 512]. It would have been an obvious matter of design choice to create a housing with a depth of about 4mm or less, since applicant has not disclosed that this size housing solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the housing depth used by Ruan et. al.

Claim 7, the cantilever arm, microstrips and electrically conductive coil are enclosed in a housing [figure 5, 504, 510, 512] having a first lateral side [510] and a second lateral side [512]. Ruan et al. discloses the claimed invention except for the lateral dimensions. It would have been an obvious matter of design choice to create a housing with a depth of about 4mm or less, since applicant has not disclosed that this size housing solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the housing depth used by Ruan et al.

Claim 8, the housing includes a substrate [102, 104, 106] and a cover [510, 512, 504]. The cantilever arm, microstrips and electrically conductive coils are mounted on a substrate and positioned underneath the cover.

Claim 9, the substrate is formed from a laminate [102, 104, 106] and the microstrip is mounted directly on the substrate.

Claims 10 and 11, when the coil is energized, the coil moves the cantilever arm from the open state to the closed state when a voltage is applied across the coil [col. 5 line 42 – col. 6 line 17]. It would have been an obvious matter of design choice to select the voltage/current used to energize the coil. since applicant has not disclosed that the use of a particular voltage/current to energize the coil and actuate the cantilever arm solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the voltage/current used by Ruan et al.

Claim 12, it would have been an obvious matter of design choice to use microstrips with an impedance of about 50 ohms when the cantilever is in the closed

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state, since applicant has not disclosed that this impedance value solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the impedance used by Ruan et al.

Claim 14, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the cantilever arm at least in part with an electrically conductive material in order to form the contact bridge instead of forming a contact bridge [308, 402] is from an electrically conductive material and attaching it to the cantilever arm in order to reduce the number of parts and simplify assembly of the MEM switch.

Claim 17, Ruan et al. discloses the claimed invention except for the gauge of the wire. It would have been an obvious matter of design choice to optimize the gauge of the wire to obtain a desired wire resistance based upon the required magnetic field strength. Since applicant has not disclosed that a wire of 25um gauge or smaller solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the disclosed wire size.

Claim 18, the cantilever arm has a first and second ends, the coil is positioned adjacent to the first end and the cantilever arm rotates around the second end [figure 1a].



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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Rojas whose telephone number is (703) 305-3873. The examiner can normally be reached on M-F (7-4:30), every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (703) 308-7619. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Br

  
KARL D. EASTHOM  
PRIMARY EXAMINER